

**To:** Lana.Davis@shell.com[Lana.Davis@shell.com]; Shaw, Hanh[Shaw.Hanh@epa.gov]  
**Cc:** Erling.Westlien@shell.com[Erling.Westlien@shell.com];  
a.macrander@shell.com[a.macrander@shell.com]  
**From:** Seyfried, Erin  
**Sent:** Tue 9/24/2013 3:34:15 PM  
**Subject:** RE: Thermal Model Report and Tech memo

Thank you, Lana.

-Erin

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Erin E. Seyfried, M.S.

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**From:** Lana.Davis@shell.com [mailto:Lana.Davis@shell.com]  
**Sent:** Monday, September 23, 2013 6:56 PM  
**To:** Seyfried, Erin; Shaw, Hanh  
**Cc:** Erling.Westlien@shell.com; a.macrander@shell.com  
**Subject:** Thermal Model Report and Tech memo

Good Evening Hahn and Erin-

Please find the attached Thermal model report and a Thermal model memo which should addresses question 3 (below) of the meeting notes sent on Sept 12<sup>th</sup>.

If you have any questions with respect to the model and ranges we could set up a conference call the first week of October to discuss further. Let me know if we need to discuss further or if you just need additional information.

Hope all is well with you both-

Best,

Lana

**From:** Seyfried, Erin [<mailto:Seyfried.Erin@epa.gov>]  
**Sent:** Thursday, September 12, 2013 3:55 PM  
**To:** Ptak, Heather A SEPCO-UAA/A/SR; Davis, Lana SEPCO-UAA/A/SR  
**Cc:** Shaw, Hanh  
**Subject:** EPA Comments on EMP Study Plan and Phase I Justification

Heather,

This message summarizes EPA's remaining comments and concerns on the revised draft Environmental Monitoring Plan (EMP) study plan submitted by Shell on August 22, 2013, for six lease blocks located within the Burger prospect of the Chukchi Sea.

1. Phase I. Overall, Shell's revised EMP has addressed EPA's comments regarding the Phase I justification (see EPA comments, dated August 8, 2013). However, one remaining question is how the data from Phase I will be used to evaluate the potential effects from drilling discharges based on data collected during Phases III and IV. Evaluating the potential impacts of the authorized discharges on water, sediment, and biological quality are one of the major goals and objectives of the EMP. In order to have

clarity, the EMP must include a detailed discussion of how Shell intends to carry out the data analysis of comparing Phase I data to Phases III-IV.

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Please provide a complete description, either in the EMP or in the QAPP, of the data that will be used in the hypothesis testing of pre- versus post-drilling conditions. As with the Phase III and Phase IV data, the Phase I data will need to be explained in terms of:

- data quantity needed (statistical power);
- type of statistical analysis (similar to test done on the benthic comparisons);
- quality assurance process to support that Phase I data was indeed collected in a rigorous manner;
- exact location(s) of the samples relative to the action area; and
- level of variability of data used for the pre/post analysis (subset of the larger body of existing data needs to be pre-defined to ensure an unbiased process after Phases III and IV data are collected)

2. Metals Analysis. During the August 29, 2013 meeting we discussed the availability of EPA Saltwater Chronic Criteria for use as screening effect levels in Shell's EMP for the metals listed in Table A of the GP. At that time EPA agreed to provide threshold values for those metals without criteria. However, we are unable to obtain assistance from EPA staff under such short notice and quick turn-around time. Therefore, we request that Shell obtain the necessary values to complete Table 1.

We recommend that Shell look beyond EPA criteria to other sources of conservative marine sediment benchmarks. Example sources of information include NOAA's Screening Quick Reference Tables and in a Compendium of Environmental Quality Benchmarks by MacDonald et al. 1999.

EPA also recommends that Shell consider contracting directly with Don MacDonald. Don has worked with EPA in the past, and is respected within the Agency. He maintains a significant database of sediment toxicity literature and will conduct specific searches and select appropriate values to meet data quality objectives. Don can be contacted through his firm:

MacDonald Environmental Sciences LTD.

24-4800 Island Highway N

Nanaimo, BC V9T 1W6

(250) 729-9625 (Phone)

(250) 729-9628 (Fax)

3. Discharge Model. EPA requests the modeling assessments with respect to non-contact cooling water temperature pursuant to Permit Part II.A.13.e.2.ii.

As discussed during our meeting on August 29, 2013, although the assessment of Discharge 001 deposition characteristics met the requirement of the GP, it did not provide sufficient information on ambient receiving water characteristics, specifically, the range of conditions for current speed/direction, vertical salinity and temperature profiles. Please provide descriptions of all the available data and the modeling assessment must clearly address the range of observed conditions. Additionally, the modeling report did not provide a clear correlation between the deposition modeling assessment and plans for post-drilling monitoring (Permit Part II.A.13.h.1.).

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EPA looks forward to receiving the NOI package that is anticipated to be submitted later this fall.

Sincerely,

Erin

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